

PREPARATION AND SURFACE MODIFICATION OF PLASTIC MICROFLUIDIC CHIPABSTRACT

The present invention discloses a method for preparation and surface modification of plastic microfluidic chip is disclosed. A microfluidic chip is first prepared by micromachining using a laser scribe on a plastic substrate, such as a PMMA substrate, to have a desired trench width or trench widths and desired aspect ratio. Surface modification is obtained after a thermal annealing treatment, followed by a chemical modification process. During the chemical modification diverse functional groups such as perfluoroalkyl ( $-C_nF_{2n+2}$ ), amino ( $-NH_2$ ) or sulfhydryl ( $-SH$ ) are introduced to perform surface passivation or further biomolecules immobilization. A plastic microfluidic chip with modified surface characters is thus obtained. The present invention also discloses plastic microfluidic chips so prepared.